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UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Administration  
Bureau of Animal Industry

SUMMARY OF RESULTS OF POULTRY RESEARCH  
AT THE AGRICULTURAL RESEARCH CENTER,  
BELTSVILLE, MARYLAND

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Table 1

Annual egg production of incrossbreds (R. I. Red X W. Leghorn)  
and of outbred R. I. Reds and outbred W. Leghorns.

| Year    | Incrossbreds | Outbred<br>Reds | Outbred<br>Leghorns |
|---------|--------------|-----------------|---------------------|
| 1935-36 | 231          | 201             | 199                 |
| 1936-37 | 236          | 188             | 196                 |
| 1940-41 | 234          | 208             | 204                 |
| 1942-43 | 196          | 155             | 196                 |
| 1943-44 | 225          | 195             | 184                 |

Table 2

Average egg production of pullets on the basis of the clas-  
sification of the sire's parents

| Classification of<br>male's parents | No. of<br>males | Hen-housed<br>average<br>egg production<br>of daughters |
|-------------------------------------|-----------------|---|
| Non-U.S.R.O.M.                      | 114             | 168.0   |
| U.S.R.O.M.-Dam only                 | 55              | 173.4   |
| U.S.R.O.M.-Sire only                | 99              | 188.6   |
| U.S.R.O.M.-Sire and Dam             | 364             | 194.4   |
| Non-Honor Roll                      | 320             | 172.6   |
| Honor Roll-Dam only                 | 77              | 178.1   |
| Honor Roll-Sire only                | 66              | 203.0   |
| Honor Roll-Sire and Dam             | 169             | 211.9   |

Table 3

Fish Meal as a source of an unknown factor in the breeder diet. Its effect on hatchability and viability and growth of progeny.

| Breeder diet            | Hatchability<br>% | Viability of<br>chicks, 1st week<br>% | Average<br>weight of<br>chicks,<br>6 weeks,<br>gm. |
|-------------------------|-------------------|---------------------------------------|--|
| All-plant-protein       | 66                | 71                                    | 402  |
| Diet with 10% fish meal | 84                | 94                                    | 490  |

Table 4

Effect of concentrate of unknown dietary factor on growth of chickens fed different levels of soybean meal.

| Soybean meal<br>in diet, % | Weight of 6-week-old chicks fed: |                                    |
|----------------------------|----------------------------------|------------------------------------|
|                            | No<br>supplement                 | 0.075% of<br>concentrate of factor |
|                            | gm.                              | gm.                                |
| 35                         | 361                              | 431                                |
| 50                         | 295                              | 472                                |
| 70                         | 181                              | 430                                |

Table 5

Effectiveness of fish meal and meat meal in improving starting and growing mashes for turkeys reared in confinement.

| <u>Protein supplement other than soybean meal:</u> |                         |                     | Average weight,<br>20 weeks |
|--|-------------------------|---------------------|-----------------------------|
| <u>1st 4 weeks</u>                                 | <u>5th to 8th weeks</u> | <u>After 8th we</u> | gm.                         |
| None   | None                    | None                | 3918                        |
| Fish meal  | Fish meal               | Fish meal           | 4756                        |
| Meat meal  | Meat meal               | Meat meal           | 4220                        |
| Fish meal  | Fish meal               | Meat meal           | 4840                        |
| Fish meal  | Meat meal               | Meat meal           | 4387                        |
| Fish meal  | Fish meal               | None                | 4140                        |
| Fish meal  | None                    | None                | 4136                        |

Table 6

Nicotinic acid content of parts of male chickens of different ages.  
(Micrograms of nicotinic acid per gm. of fresh tissue)

| Age,<br>weeks | Breast<br>muscle | Leg<br>muscle | Liver |
|---------------|------------------|---------------|-------|
| 6             | 208              | 79            | 125   |
| 12            | 142              | 58            | 100   |
| 18            | 117              | 42            | 119   |

Table 7

Effect of environmental temperature on gain in weight and feed efficiency of chicks.

| Temperatures on<br>1st and 9th days<br>°F. | Increase over<br>original weight,<br>% | Efficiency |
|--|--|------------|
| 95-91                                      | 0.55                                   | 0.35       |
| 94-91                                      | 0.57                                   | 0.36       |
| 96-88                                      | 0.58                                   | 0.37       |
| 95-88                                      | 0.59                                   | 0.38       |
| 94-88                                      | 0.59                                   | 0.38       |
| 92-88                                      | 0.57                                   | 0.36       |
| 93-84                                      | 0.54                                   | 0.34       |

Table 8

Fertility and Hatchability of Various Types of Abnormal Eggs.

|                              | Fertility<br>% | Hatchability<br>of fertile eggs,<br>% |
|------------------------------|----------------|---------------------------------------|
| Cracked eggs                 | 75             | 53                                    |
| Extra large (65 gm. or more) | 66             | 71                                    |
| Small (45 gm. or less)       | 48             | 80                                    |
| Abnormal shape               | 69             | 49                                    |
| Poor shells                  | 72             | 47                                    |
| Mobile air cell              | 72             | 32                                    |
| Misplaced air cell           | 78             | 68                                    |
| Large blood spots            | 79             | 72                                    |
| All abnormal eggs            | 72             | 62                                    |
| Normal controls              | 82             | 87                                    |

Table 9

Hatchability of eggs as affected by storage at 50° and 55°F.

|        | Percent hatch of fertile eggs after storage for: |    |    |    |    |         |
|--------|--|----|----|----|----|---------|
|        | 7  | 14 | 21 | 28 | 35 | 42 days |
| At 50° | 80   | 77 | 60 | 50 | 22 | 7       |
| At 55° | 80   | 72 | 60 | 26 | 6  | 0       |

Table 10

Relation between feeding schedule and laying of eggs by hens under continuous light.

| Feeding time  | Active period | Eggs laid in<br>Active period,<br>% |
|---------------|---------------|-------------------------------------|
| Continuous    | 6 A.M.-8 P.M. | 98                                  |
| 8 A.M.-4 P.M. | 6 A.M.-6 P.M. | 95                                  |
| 8 P.M.-4 A.M. | 6 P.M.-6 A.M. | 72                                  |

